

Release A CDR RID Report

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Originator Leaf, Dawn

Organization IV&V/Intermetrics

E Mail Address dml@cclink.gblt.inmet.com

Document document and presentation

Phone No 301-982-5414 ext.
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| RID ID | CDR 72 |
| Review | SDPS/CSMS |
| Originator Ref | IVVRID-DL-1 |
| Priority | 2 |

Section NA

Page NA

Figure Table NA

Category Name ECS System-Level

Actionee ECS

Sub Category

Subject Missing System Integration Overview

Description of Problem or Suggestion:

Program Impact The ECS Design presented at CDR and in the CDRL design documents does not explain the "big picture" system view of how all of the design components fit together to meet REL A functional requirements. There is no single consolidated part (section, table, or block diagram) of the 305 design spec which shows how major requirements are allocated across the system to the developed and COTS design subsystems (or releases.)

The individual system components may perform as designed in the individual 305 specs, but the overall ECS system may fail if it does not function as a whole in a predictable way. If this is the case, the system may be rejected by the user community. There will not be enough time in the program life cycle to take corrective action in a later release because all later releases build upon the core design decisions made in REL A and release schedules are overlapping. Examples of major functions that depend on whole system integration are: ECS wide Resource planning and backlog scheduling Exception and error handling ECS wide performance ECS adaptation of the Universal Reference concept to identify and track application and data granule objects System wide security, especially user authentication In addition, because the design document contains no broad explanation of how these functions work system wide, the associated logistics for implementing the system, including procedures, are not defined. Lack of understanding by the end-users and lack of preparation for implementation and operation may cause ECS REL A to functionally fail or to appear inferior to existing systems. The system may be a technical success and a functional failure. Description of the Problem The 305 Design documentation allocates the design functions at the individual Sub-system/CI document level, but does not show how the design is allocated overall. The 305 Design Document Overview Volume (4) could serve as the central repository to do so, and should be tied to the Systems Operations Concept scenarios such that an understanding of how the scenario operates in terms of the total ECS system is clear. Including major functional scenarios in the overview and tracing each scenario through a "big picture" view of the ECS system would demonstrate that the design is adequately allocated overall,

Originator's Recommendation

Correct by adding to/enhancing the ECS operating scenarios and adding a system level function trace for the scenarios in the 305 Overview volume 4 document The following steps are an IV&V outline approach intended to further illustrate how the recommendation could be implemented -- they are not meant to be interpreted as a program directive.

- 1) Select between 5 and 12 system wide functions to be represented in scenarios (for example the 5 major functions listed at the beginning of the RID, or another set based on criticality as judged by the program)
- 2) Initiate a joint ESDIS/ECS team with participation from the DAACs and the user community to expand and/or add to the 605 operations scenarios as needed to illustrate major the functions
- 3) Add a section in the 305 Overview volume 4 to show at a high level how the whole ECS system meets the scenarios. Include a table that shows which system Subsystems/CIs are part of the scenario, and which ones are not.
- 4) Use the revised 305 to rebrief as needed to resolve open ESDIS/ECS, DAAC, and end-user concerns and questions

GSFC Response by:

GSFC Response Date

HAIS Response by: Jacob Eisenstein

HAIS Schedule 9/20/95

HAIS R. E. Richard Meyer

HAIS Response Date 10/10/95

An overview of the ECS Design is given in 305-CD-004-001. The overview shows how the system is functionally decomposed and explains the functionality assigned to each subsystem (Sections 4 and 5). It explains the Release A mission, design objectives and drivers, and the subsystem design rationales (in Section 3). It also provides an overview of design concepts which are important from an overall system perspective, such as intercommunication, security, external interfaces, system management and reporting, and general user interface strategy. Perhaps, the RID originator was asking for a top level design document. This role is filled by the SDS (DID 207) which was submitted at SDR and was not scheduled for resubmission at CDR.

Allocation of functional responsibilities at the system level in the Functional and Performance Requirements document (F&PRS). This is because the level 3 requirements are divided into major groupings, and are categorized by architectural components (segments and elements). While the design document now uses subsystems instead of elements, the mapping of elements to subsystems is shown in the SDS (DID 207) For SDPS, the mapping is on page 4-1, and is as follows: element "IMS" maps to subsystems CI S IQS DMS and a small portion of DSS; element "DADS" maps to subsystems DSS and INS; and element "PDPS" maps to subsystems CI S IQS DMS and a small portion of DSS.

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At the more detailed level, each subsystem document of DID 305 includes a trace of the level 4 requirements to the design component(s) which satisfy the requirement.

The purpose of the requirements decomposition was to ensure that the requirements, at the component level, when integrated together, will produce the overall system as intended.

With respect to the specific recommendations:

- 1) A set of system wide functions has indeed been selected and is presented in the form of scenarios in the CDR documentation. Since the scenarios span system elements, the scenarios are presented in the Internal Interface Control Document (ICD) (313-CD-004-001), Section 4. In addition, the document describes Key Mechanisms, i.e., interactions between CI/subsystems which are essential to the overall functioning of the ECS Release A.
- 2) A set of operations scenarios have been developed, and were presented to the DAACs and user community at the Operations Concepts Workshop in June, 1995. The work is being expanded, again with participation from the DAACs and user community, and will lead to an update to DID 605, with a final due date in December, 1995.
- 3) The intent of the recommendation is unclear. In general, no scenario exercises the "whole ECS system" in the sense that it would require each and every capability in the system for its completion. The ICD does provide tables in Section 4 which map each scenario to the CSCI which are needed for its execution, as requested in the suggestion. The detailed event traces for the scenario primitives take this down to the level of specific public interfaces.
- 4) The operations scenarios will be discussed extensively with the DAACs and users. For example, we are conducting weekly tele-conferences to discuss operations concepts issues (for a summary of the DID 605 plan, see the response to RID #8). Future briefings on revisions to DID 305 will focus on the Release B design.

Status Closed

Date Closed 10/12/95

Sponsor Schroeder

***** **Attachment if any** *****
